

REMARKS

Applicants respectfully request reconsideration in view of the foregoing amendments and following remarks. Claim 20 has been amended to address the rejection raised in the office action. No new matter has been entered with this amendment.

Claims Rejections – 35 U.S.C. §112

Claim 20 was rejected under 35 U.S.C. § 112 as being indefinite for having insufficient antecedent basis for the limitation, “dividing the image,” in the claim. Claim 20 has been amended to depend from claim 18, which thereby provides the antecedent basis for the limitation “dividing the image.” Accordingly, withdrawal of the rejection is respectfully requested.

Claims Rejections – 35 U.S.C. §103

Rejection in view of Zhang, Choi, and Suzuki

Claims 1-5 and 14-20 were rejected under 35 U.S.C. §103 as being unpatentable over Zhang (U.S. Patent No. 5,978,494) in view of Choi (IEEE Publication Titled “New Autofocusing Technique using the Frequency Selective Weighted Median Filter for Cameras”) and Suzuki (U.S. Patent No. 6,307,954). Applicants respectfully traverse this rejection.

The claimed invention selects the clearest eye iris image from a set of eye images by selecting the image with the highest characteristic definition score. The characteristic definition score is used to determine the clarity of the eye image. A higher characteristic definition score indicates a clearer image. The claimed invention first calculates a first approximate characteristic definition score for each image. Images with first approximate characteristic not greater than a threshold value are eliminated because they are too blurry to be used for identification or authorization. A second approximate characteristic definition score is then calculated to determine the clearest image from the remaining images. This second characteristic definition score is independent of the first characteristic definition score.

As correctly recognized by the Examiner, Zhang discloses a method for selecting an eye image from a set of digital eye images based on its definition. However, the Examiner incorrectly characterizes Zhang as calculating two separate characteristic definition scores to select the best representative eye image.

Zhang first calculates a focus measure value for each of the initial set of digital eye images. These values determine the set of images that are candidates for the best master enroll image. Depending on equipment used, there is a specific range of focus measures that produce good results with regards to minimizing Hamming distances.

Once this set of images is established, each image in this set is verified against the remaining images in the set and a median Hamming distance is calculated. The number of successful verifications must be greater than a threshold percentage determined by the focus measure range used in the previous step. The Examiner incorrectly characterized this step as calculating a second approximate characteristic definition. This step does not calculate another approximate characteristic definition. Rather, this step merely determines which image in the set is most like the other images in the set (i.e. which image has the smallest median Hamming distance with respect to the remaining images in the set). The selected master image does not necessarily have to be the clearest image in the set.

Applicants maintain that Zhang fails to teach calculating a second approximate characteristic definition score to determine the closest image. Instead, Zhang simply teaches making comparisons between the images and selecting the image most representative of the images in the set (i.e. the image with the smallest median Hamming distance). The method taught by Zhang does not search for the clearest image in the set, but rather, the image that best represents the other images in the set.

The Examiner notes that the gradient accumulation method presented in Choi finds the best focused (clearest) image. However, the clearest image is not necessarily the best image that best represents the appearance of the subject matter in the image as compared to another image. The method presented in Zhang does not search for the clearest image from the set of images selected and the method described in Zhang is only suitable for searching for the most representative image of the set. It is respectfully submitted that one of skill in the art would not have been motivated to modify Zhang with the teachings of Choi because the added complexity with Choi's methodology would render Zhang's less complex process unsatisfactory. In this regards, making Zhang's process to include Choi's more sophisticated algorithm is unnecessary for satisfying Zhang's purpose of merely finding the closest representative image. Zhang simply does not need to find the *clearest* image.

It is also respectfully submitted that the obviousness rejection of the claim over Zhang in view of Choi and Suzaki is also misplaced. The Examiner states that Suzaki discloses approximating the location of an eye pupil in the image and defining a placement of a window surrounding the eye image based on the pupil location. However, one skilled in the art would not use the method disclosed in Suzaki to calculate a second characteristic definition score because Zhang and Choi do not even suggest or teach the use of a second characteristic definition score to determine the clearest eye image to use for eye image identification or authorization. For this reason, it would not have been obvious to one skilled in the art to use the method of pupil location in Suzaki to calculate a second characteristic definition score along with Zhang (in view of Choi), which only calculates a first characteristic definition score.

Accordingly, the rejection of independent claim 1 under 35 U.S.C. §103 based on Zhang, Choi and Suzaki is improper and should be withdrawn. Claims 2-5, 14 and 16 depend from claim 1 and are patentable for at least the same reasons. Claims 15 and 17 were rejected for the same reasons as claim 1, and therefore are patentable for at least the same reasons. Claims 18-20 depend on claim 17 and are also patentable for at least the same reasons.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

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Respectfully submitted,

By:



Neil P. Ferraro
Registration No. 39,188
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000